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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/785,689 | 02/20/2001 | Luther E. Lindler | | 3889 |

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| EXAMINER | |
|---|---|
| GUCKER, STEPHEN | |
| **ART UNIT** | **PAPER NUMBER** |
| 1647 | 12 |

DATE MAILED: 04/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

| Application No. | Applicant(s) |
|---|---|
| 09/785,689 | Lindler et al. |
| **Examiner** | **Group Art Unit** |
| Stephen Gucker | 1647 |

*—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

**Status**

☑ Responsive to communication(s) filed on 4/7/03.

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 1 1; 453 O.G. 213.

**Disposition of Claims**

☑ Claim(s) 1-10 is/are pending in the application.

Of the above claim(s) 7-8 & 10 is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☑ Claim(s) 1-6 & 9 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement.

**Application Papers**

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☑ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119 (a)-(d)**

☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 11 9(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 1 7.2(a)).

*Certified copies not received: _____.

**Attachment(s)**

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☑ Notice of Reference(s) Cited, PTO-892

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Interview Summary, PTO-413

☐ Notice of Informal Patent Application, PTO-152

☐ Other _____

**Office Action Summary**

**Part III DETAILED ACTION**

**1.** Applicant's election of Group I, claims 1-6 and 9 in Paper No. 10 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). If the invention of Group I is deemed patentable, the methods of making antibodies (Group III) using the protein of Group I that are commensurate in scope with Group I will be examined.

**2.** Claims 7-8 and 10 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made without traverse in Paper No. 1.

**3.** The disclosure is objected to because of the following informalities:

Pages 6, 7, and 8, and claim 1 require SEQ ID NOs for the various amino acid and nucleotide sequences recited.

Appropriate correction is required.

**4.** The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: claim 1: "reactive with antibodies raised to Brucella species have a sequence of at least 90 amino acids from the sequence..." is not found in the specification as filed and needs to be amended into the specification. Also, claim 3: "a composition of matter comprising a protein of claim 1 attached to an antibody" is also not found in the specification as

filed, nor are the dependent claims 5-6. All original claim language not found in the specification as originally filed needs to be amended into the specification at an appropriate location in the specification.

**5.** Claims 1-6 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 is indefinite because it does not specify if the sequence of 90 amino acids recited is contiguous or noncontiguous with the actual sequence recited in the claim. That is, can the 90 amino acid sequence be made up of separate subsequences or re-arranged sequences from the recited sequence, or does the 90 amino acid sequence need to be a contiguous fragment from the amino acid sequence actually listed? Additionally, the claim appears to be grammatically incorrect: "...raised to [a?] Brucella species have [sic, having?] a sequence..." Furthermore, the claim is indefinite for failing to recite how the molecular weight of the protein was determined because different methods of calculating molecular weight will produce different results, such as SDS gels under reducing or non-reducing conditions, gel filtration (which is sensitive to the shape and hydration of the protein wherein SDS gels are not), mathematical calculation from the deduced amino acid sequence, etc.

**6.** The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**7.** Claims 1-6 are rejected under 35 U.S.C. 102(a) as being anticipated by Debbarh et al. ("Debbarh"). Debbarh teaches a 28 kD protein which is reactive with antibodies to Brucella (abstract and pages 39-44, Figures 3-4, and see discussion bridging pages 46-47). The protein is deemed to inherently have the peptide sequence claimed since it has the claimed molecular weight and is from the claimed genus and is reactive against antibodies to this genus. The protein is attached to a nitrocellulose support in the figures. When the antibody is attached to the protein it is deemed to meet the limitation of claim 6. Furthermore the protein is lyophilized from a cleared supernatant that can be considered a pharmaceutically acceptable carrier because it has already undergone nuclease treatment and two rounds of ultrafiltration, sufficient to sterilize the composition (100 kDa cut off on the Amicon filter). In this state, the protein and supernatant could be used as an injectable antigen into animals if desired.

**8.** Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Riezu-Boj et al. ("Riezu-Boj") in light of Debbarh. Riezu-Boj teaches a protein which is reactive with antibodies raised to Brucella (abstract, pages 489-490, Figures 1-4, page 492, column 2). The protein is disclosed to have an apparent weight of 28.5 kD, which is within experimental and resolution error of the claimed 28 kD protein (see Debbarh, page 47, concerning the differentiation of antigenic proteins ranging from 28-32 kD apparent molecular mass (AMM) from Brucella). It is the position of the Examiner that the minor difference in AMM is not deemed significant in view of the aforementioned experimental error and that the protein comes from the same source and

reacts in the same manner as that which is claimed. The protein is deemed to inherently have the peptide sequence claimed since it is deemed to have the claimed molecular weight and is from the claimed genus and is reactive against antibodies to this genus. The protein is attached to a nitrocellulose support in the figures. When the antibody is attached to the protein it is deemed to meet the limitation of claim 6. Furthermore, the protein is found within both the saline and distilled water extracts of the antigenic preparations (methods disclosed on pages 489-490), both of which are pharmaceutically acceptable carriers. Although the instant specification (page 3, lines 19-22) states that the sera of Riezu-Boj does not react with the instant protein, which sera of Riezu-Boj is not identified. Page 491 of Riezu-Boj discloses over 70 different antisera, not all of which react with the 28.5 kDa protein, so depending on the antisera used and under what conditions, the statement made in the specification cannot exclude the prior art without further explanation or clarification. In addition, the description of the experiments performed on page 9, lines 8-17, of the instant specification is insufficient because it states that "the antibodies raised to the protein Omp28 of the invention interacted with Omp28 protein, but did not react with any protein from the Riezu-Boj sera." The Riezu-Boj sera does not contain the 28.5 kDa protein, which the Examiner maintains anticipates the instant protein. Rather, the Riezu-Boj sera would contain antibodies against the 28.5 kDa protein, and not the protein itself. Finally, the instant disclosure states that "the protein of this invention was exposed to sera used in Riezu-Boj to determine whether the protein of the invention was reactive therewith. The protein identified as Omp28 (protein of this invention) and proteins of Riezu-Boj were identified on a Western blot.

Antibodies against the Omp28 of the invention were then applied to the Western blot" (page 9, lines 8-13). The Examiner is unclear as to how both proteins could be identified as being actually present on a Western blot (which uses antibodies to identify proteins) if the sera of Riezu-Boj did not react with the protein of the instant invention, *before* the application of antibodies against the Omp28, as specifically stated in the specification. A more likely explanation is that some of the sera of Riezu-Boj did, in fact, react with the Omp28.

**9.** The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

**10.** This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

**11.** Claims 1, 4, and 9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Debbarh or Riezu-Boj in view of Serikawa et al. ("Serikawa"). The teachings of Debbarh and Riezu-Boj are as set forth in ¶7-8 above, respectively. They do not teach adjuvant in combination with an antigen from Brucella. Serikawa does teach Freund incomplete adjuvant in combination with Brucella antigens (page 838). It would have been obvious to one of ordinary

skill in the art at the time of the invention to combine the antigen of Debbarh or Riezu-Boj with the adjuvant of Serikawa in order to use the composition to increase antibody production because Debarrh provides the suggestion and motivation that the 28 kD protein is detectable early in infection and has a high frequency of reactivity in naturally infected animals (pages 46-47). This early onset and reactivity makes this composition highly desirable as a protective vaccine because the reactivity indicates good immunogenicity and the early onset is desirable for an immunological response from the vaccinated animal early rather than later in the course of the disease pathology, rendering the claim *prima facie* obvious.

**12.** No claim is allowed.

**13.** Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Gucker whose telephone number is (703) 308-6571. The examiner can normally be reached on Monday to Thursday from 0730 to 1800. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Caputa, Ph.D., can be reached on (703) 308-3995. The fax phone number for this Group is currently (703) 308-4242, but Applicant should confirm this by phoning the Examiner before faxing.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Stephen Gucker

April 21, 2003

GARY KUNZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600